

WHAT IS CLAIMED IS:

1. A maintenance service system for carrying out maintenance service on a multi-vendor system, comprising:

5 a multi-vendor system which is constructed by various types of equipments supplied from plural vendors and carries out information processing;

a multi-vendor system monitoring and reporting server which is connected to said multi-vendor system, detects a trouble  
10 in the multi-vendor system and reports trouble information;

a primary maintainer terminal which is managed and operated by a primary maintainer, receives the trouble information reported from said multi-vendor system monitoring and reporting server, instructs a trouble solving dealing to a maintenance  
15 company system associated with the trouble, and creates and transmits a report document relating to a trouble occurrence condition and a trouble solving condition; and

the maintenance company system for receiving the trouble information reported from said multi-vendor system monitoring  
20 and reporting server to do maintenance of said equipments constituting said multi-vendor system.

2. The maintenance service system according to claim 1, wherein

25 said multi-vendor system monitoring and reporting server comprises

an interface conversion device for receiving a trouble automatic reporting message or automatic reporting signal output from each of said various types of equipments and converting  
30 the message or signal thus received to a trouble message,

an RS signal sensing portion for sensing an RS transmission request signal and transmitting the signal to said interface

conversion device,

a trouble automatic reporting device for reporting the trouble message, and

a trouble mail server.

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3. The maintenance service system according to claim 2, wherein

said various types of equipments comprise server equipment, client equipment and incidental equipment.

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4. The maintenance service system according to claim 3, wherein

said server equipment has a SVP (service processor), and said SVP has means for detecting a trouble and notifying the trouble to said interface conversion device and said maintenance company system through a modem.

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5. The maintenance service system according to claim 3, wherein

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said server equipment has a SVP (service processor) and designed so that a DTE cable serving as a interface cable between the SVP and a modem is connected between the SVP and modem while relayed at said RS signal sensing portion,

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said SVP has means for detecting a trouble and notifying the trouble to said maintenance company system through the modem, and

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said interface conversion device senses through the RS signal sensing portion an RS transmission request signal out of a DTE interface signal to the modem which is transmitted out to the DTE cable, thereby recognizing occurrence of the trouble.

6. The maintenance service system according to claim

3, wherein

the server equipment has means for detecting a trouble through an operating system and notifying the trouble through a modem to said interface conversion device and said maintenance  
5 company system.

7. The maintenance service system according to claim 3, wherein

said server equipment is designed so that a DTE cable  
10 serving as an interface cable between a SVP (service processor) and a modem is connected between the SVP and the modem while relayed through the RS signal sensing portion,

said server equipment has means for detecting a trouble and notifying the trouble through the modem to said maintenance  
15 company system, and

said interface conversion device senses through the RS signal sensing portion an RS transmission request signal out of a DTE interface signal to the modem which is transmitted out to the DTE cable, thereby recognizing occurrence of the trouble.  
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8. The maintenance service system according to claim 3, wherein

said server equipment has means for detecting a trouble and notifying a message to said interface conversion device with  
25 an RS232C serial interface signal.

9. The maintenance service system according to claim 3, wherein

said incidental equipment has means for notifying a message  
30 to the interface conversion device on the basis of an RS232C serial interface signal when a trouble is detected.

10. The maintenance service system according to claim 3, wherein

5       said incidental equipment has means for notifying the interface conversion device on the basis of a contact point signal with which a contact point is closed at a trouble occurrence time and opened at a normal time.

11. The maintenance service system according to any one of claims 5, 7, 8, 9 and 10, wherein

10       said interface conversion device has means for sensing the signal and carrying out trouble message conversion/addition corresponding to the signal.

12. The maintenance service system according to claim 15 1, further comprising

      a system manager device containing a system console, an operation monitoring server and a mail server to manage the multi-vendor system at a system manager.

20       13. The maintenance service system according to claim 12, wherein

      said system console and said operation monitoring server have means for detecting a message containing a trouble term from messages received by the system console and the operation  
25       monitoring server and transmitting the message thus detected to the primary maintainer terminal.

14. A maintenance service method for carrying out maintenance service method for a multi-vendor system which is  
30       constructed by various types of equipments supplied from plural vendors and carries out information processing, said method comprising the steps of:

at a multi-vendor system monitoring and reporting server,  
monitoring said multi-vendor system to detect a  
trouble,

reporting trouble information to a primary  
5 maintainer terminal and a maintenance company system;  
at said primary maintainer terminal,

receiving the trouble information reported from the  
multi-vendor system monitoring and reporting server,

carrying out trouble analysis and trouble dealing,  
10 instructing a trouble solving dealing to a  
maintenance company system associated with the trouble,

creating a report document on trouble occurrence  
condition to transmit the report document to a system manager  
device, an end user client and a maintenance company system;

15 at said maintenance company system,

receiving the trouble information reported from  
said multi-vendor system monitoring and reporting server,

receiving the instruction of the trouble solving  
dealing from said primary maintainer terminal,

20 carrying out maintenance of equipments under  
trouble which constitutes said multi-vendor system,

reporting a trouble dealing condition to the primary  
maintainer terminal; and

at said primary maintainer terminal,

25 creating a report document on the trouble solving  
condition to transmit the report document to the system manager  
device, the end user client and the maintenance company.

15. The maintenance service method according to claim  
30 14, further comprising the steps of

at a primary maintainer operating said primary maintainer  
terminal,

creating operation stop information for periodic  
checkup, current status information of each equipment, system  
operation relating information, report information relating to  
system management and process information for check and

5 maintenance/repair work, and

transmitting an electronic mail having the  
information thus created via the multi-vendor system monitoring  
and reporting server or presenting the information thus created  
on the Web of the multi-vendor system monitoring and reporting  
10 server.

16. The maintenance service method according to claim  
14, further comprising the steps of

at a primary maintainer,

15 starting and executing a test run job after the step  
of carrying out trouble dealing is completed,

checking whether the trouble is finished, and  
restarting a business operation.

20 17. The maintenance service method according to claim  
14, wherein

the step of carrying out trouble dealing is entirely  
carried out by operation of a primary maintainer.

25 18. The maintenance service method according to claim  
14, wherein

the step of carrying out trouble dealing is carried out  
with initiative by a primary maintainer grasping the whole of  
said multi-vendor system while the burden of said step of carrying  
30 out trouble dealing is shared to the primary maintainer and  
secondary and subsequent maintainers.

19. The maintenance service method according to claim 14, wherein

the step of carrying out trouble dealing comprises  
a window dealing step at which the primary maintainer  
5 carries out a window dealing work to the system manager and the  
end user, wherein the primary maintainer delivers the trouble  
dealing work to the secondary and subsequent maintainers and  
the trouble dealing work thus delivered is carried out by the  
secondary and subsequent maintainers.

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20. The maintenance service method according to claim 17, wherein

the step of carrying out trouble dealing comprises the  
steps of:

15 at said primary maintainer,

carrying out a restart-up operation when it is judged  
on the basis of a business content of a system server equipment  
under trouble and a trouble content that the system operation  
should be preferentially continued;

20 regarding the trouble occurrence as an intermittent  
trouble and continuing the system operation when the restart-up  
operation succeeds and thus the system operation is continued;

securing a machine time for investigation of causes  
for the trouble and research and countermeasure to

25 trouble/failure;

stopping the operation when an operation stopping  
condition is satisfied;

regarding the trouble as not the intermittent  
trouble, but a fixed trouble and carrying out an operation  
30 stopping operation for carrying out a trouble dealing work;

stopping the system server equipment to  
preferentially investigate causes for the trouble occurrence

and deal with the trouble when it is judged on the basis of the business content of a system server equipment under trouble and the trouble content that it is not preferential to continue the system operation;

5                   collecting trouble error logs;  
                  analyzing the error logs by an engineer of an assigned technical support department or the primary maintainer itself;

                  ordering a trouble part when a trouble site is found  
10 out through the error log analysis;

                  settling a part estimated as a cause of the trouble on the basis of the trouble content and the error logs when no trouble site is found out, and ordering the part thus settled;

                  receiving a part delivered;

15                   exchanging the trouble part or trouble-estimated part by the part thus delivered; and

                  reporting a trouble-dealing information on the trouble dealing condition and the prospect of recovery to the system manager and the end user.

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21. The maintenance service method according to claim 18, wherein

the step of carrying out trouble dealing comprises the steps of:

25                   at said primary maintainer,

                  carrying out a restart-up operation, an operation stopping operation, an operation of stopping securing investigation machine time and an error-log collecting operation, the operations being relevant to the operation of system server  
30 equipment;

                  at said secondary and subsequent maintainers,  
                  analyzing the error logs,



specifying a trouble part, ordering a new part,  
carrying the new part,

exchanging the trouble part by the new part,

reporting a trouble dealing condition to the primary

5 maintainer; and

at said primary maintainer,

receiving a progress report from the secondary and  
subsequent maintainers,

reporting trouble dealing information on the

10 trouble dealing condition and the prospect of recovery to the  
system manager and the end user together with a  
primary-maintainer's estimate of the situation.

22. The maintenance service method according to claim  
15 19, wherein

the step of carrying out trouble dealing comprises the  
steps of:

at said secondary and subsequent maintainers,

re-starting up,

20 stopping the operation,

collecting error logs,

analyzing the error logs,

specifying a trouble part,

ordering the part,

25 carrying the part,

exchanging the part,

reporting the trouble dealing condition to the  
primary maintainer by the secondary and subsequent maintainers;  
and

30 at said primary maintainer,

receiving a progress report from the secondary and  
subsequent maintainers,

reporting trouble dealing information on the trouble dealing condition and the prospect of recovery to the system manager and the end user together with a primary-maintainer's estimate of the situation.

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23. The maintenance service method according to any one of claims 20, 21, and 22, wherein

the step of carrying out trouble dealing further comprises the steps of:

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with respect to software trouble,

collecting trouble dump data;

analyzing the dump data;

requesting creation of a patch correction object for the software trouble;

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achieving the patch correction object thus requested; and

applying the patch correction object thus achieved.

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24. A maintenance service program for enabling a computer to execute maintenance service method for a multi-vendor system which is constructed by various types of equipments supplied from plural vendors and carries out information processing, said method comprising the steps of:

at a multi-vendor system monitoring and reporting server,

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monitoring the multi-vendor system to detect a trouble, and

reporting trouble information to a primary maintainer terminal and a maintenance company system;

at the primary maintainer terminal,

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receiving the trouble information reported from the multi-vendor system monitoring and reporting server,

carrying out a trouble dealing work, a function of

instructing a trouble solving work to a maintenance company system associated with the trouble, and

creating a report document on a trouble occurrence condition and a trouble solving condition and transmitting the report document to a system manager device, an end user client and the maintenance company system; and

at the maintenance company system,

receiving the trouble information reported from the multi-vendor system monitoring and reporting server,

receiving an instruction of the trouble solving work from the primary maintainer terminal,

carrying out maintenance for trouble equipment constituting the multi-vendor system and a function of reporting a trouble dealing condition to the primary maintainer terminal.

25. The maintenance service program according to claim 24, wherein said method further comprises the step of:

at the primary maintainer terminal,

creating operation stop information for periodic checkup, current status information of each equipment, system operation relating information, report information relating to system management and process information of maintenance/repair work;

transmitting the information thus created through the multi-vendor system monitoring and reporting server with an electronic mail; and

presenting the information thus created on the Web of the multi-vendor system monitoring and reporting server.